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THE BIRDS OF THE DOUGLAS LAKE REGION

BY JAS. S. COMPTON.

The Biological Station of the University of Michigan is located on Douglas Lake in the western part of Cheboygan County, Michigan, in a district almost equidistant from the Straits of Mackinac, and the Great Lakes, Huron and Michigan. The data upon which this paper is based were gathered by the writer while in residence at the Station during the summers of 1913 and 1914. The session at the Station like that of the university of which it is a part covers a period of eight weeks beginning the last of June. The weather conditions, then, are those of midsummer in the region of the upper Great Lakes.

The region about Douglas Lake has a remarkable geological history, most of it at one time or another during the Glacial Epoch having been moraines, outwash aprons, lake beach, lake bottom, lake dune, or two or more of these different deposits, an outwash apron at one time furnishing the materials to build a lake beach, and it a little later in turn the sand for a dune.¹ The soil is sandy; much of it has little in it besides well worn grains of quartz; in some places especially on the higher levels where least washing by wave action has taken place there is much gravel and a little clay and loam. So far as permanent human settlements are concerned most of the region is still wilderness, the barren sand having little attraction for even the most land-hungry. Conditions of life for man and beast and bird are decidedly primitive.

A generation or less ago the land was heavily forested with white and red pine, hemlock, spruce, hard maple, beech, birch, white cedar, balsam, tamarack, swamp maple and black ash, but now little of the original growth remains. In only one place within a radius of three miles of the Station can the primeval conifer-hardwood forest be seen untouched by forest fire or the ax of the lumberman. This oasis is Fairy Island in Douglas Lake, an exception to the rule because of its isolated

¹ Summary of Surface Geology of Michigan. Alfred C. Lane. 1908.

position. Two tracts of cut-over hardwoods lie within a mile of the Station, a typical cedar bog two miles distant on the north shore of Burt Lake, and all about and between are the sand hills and plains covered with aspens.

The cut-over hardwoods are a vast brush-heap laid and ready for the match. Tree-tops in varying stages of dissolution cover the ground lying as the lumberman left them when he withdrew; the few trees that he failed to cut down, the saplings and second growth that have since sprung up, project above but scarcely conceal the debris. So numerous are the fallen trunks and so dense the foliage of the shrubby growth that one may sometimes walk for rods upon them without so much as a glimpse of the earth beneath him. Under this leafy jungle where the midsummer sunlight seldom falls is a thick layer of humus and wood in all stages of decay inhabited by hordes of lowly creatures, ants, worms, snails, beetles, and larvae of many insects. Here in July and August are plenty of berries, especially of the red-berried elder and the red raspberry fruiting wherever they can find a place to grow. It would be difficult to find conditions of food and shelter more acceptable to the forest avifauna than are afforded by these cut-over hardwoods.

The large bog on Burt Lake to which reference has been made may well serve as a type of the bogs of the region as there are a number of smaller ones partly filled with vegetation and sand washed down from the adjacent higher land. This bog, known locally as Reese's Bog, has evidently been formed by dune or wave action that resulted in the cutting off of a large shallow arm of the lake; the quiet bay thus formed became filled with vegetation, each generation of plants at its death laying the foundation on which the next was to grow. Underfoot now is a water-soaked carpet of Sphagnum and other mosses, sundews, orchids, and other water-loving plants into which the foot sinks to shoe-top; overhead the trees meet in a tangle of twigs, white cedars, balsams, spruces, and larch, with here and there a swamp maple, a white birch or a black ash. The competition for sunlight

is very keen; most all of the survivors are dead in their lower limbs and are soon adorned for the funeral by a vigorous colony of lichens, both of the crustaceous and filamentous kinds. Only in a few places in the old logging roads does the sunshine fall without obstruction even at noon; in such favored places there is a vigorous growth of vegetation of many species, more than two hundred having been officially identified by the botanists of the Station. Numerous minute pools of water in the moss, and several brooks flowing a few inches below the surface tell us that water is never very far away, and suggest that perhaps Burt Lake has never quite given up the struggle for this part of his ancient domain.

The aspens are the pioneers of the drier lands. They enter upon the scene early, tame the sand down a little and hold it in their possession till the more dominant types appear, fighting always a losing fight in which it is foreordained that they go under unless some outside force interrupts the orderly march of events and starts the plant succession back near the beginning. The outside force that has intervened in this instance is the forest fire which has swept away practically all of the splendid mixed pine and hardwood forest that once covered these sandy stretches. Fire after fire has swept through this aspen territory till now in a few localities it is nearly as bare of vegetation, other than mosses and lichens, as it was the day the sullen waters of the glacial lake retreated from it for the last time. Among the aspens grow the white birch, red oak, pine, and a number of berry-bearing plants such as the blackberry, huckleberry, two kinds of blueberries, the pin cherry and the wintergreen.

The habitats discussed in this paper are the three that have been described at some length in the foregoing pages.

The tent which the writer lived in during the period mentioned was located on the beach of Douglas Lake; obviously the opportunities for observation were best in this habitat; furthermore the lake was rimmed by a growth of pines that stood just where the beach and the aspens meet. There was very little marsh or swamp in the region; if we use the term

swamp, for instance to designate a tract of wet land grown up with reeds and coarse grasses, cattails, etc., but without any conspicuous woody shrubs or trees as is the case with the bog.

These habitats are of interest only in their relation to the birds living in them. Some species show decided preferences for one plant association: the golden-crowned kinglet found only in the cedar bog, the junco only in the aspens; others like the hermit thrush were more generally distributed, being found in the bog, hardwoods, and aspens alike. At the end of June there is quite a large bird population in the aspens, but by the middle of August it is very much reduced both in numbers of individuals and of species observed. A half day's jaunt in the aspens the forenoon of July 8 gave me a list of 23 species; two days before a similar trip in the hardwoods gave 41 species. On August 7 the number seen on a sunny forenoon's trip was 6 species; the next forenoon in the hardwoods my list was 46 species.

In the list which follows will be found the English names of the species, the habitat preference of each species, the frequency, the abundance, and nesting data where any were gathered. Frequency and abundance as here used need a word of explanation. The former term refers to the comparative frequency with which the species, not the individual, was seen; in this connection I have used three degrees as follows: r or rare=seen from 1 to 4 times; c or common=seen from 5 to 20 times; a or abundant=seen more than 20 times. Abundance, on the other hand, applies to the total numbers of individuals of the different species seen during a given period; in this case the period covers from June 30 to August 7, stopping before the fall migration gets any headway to disturb our study of midsummer birds. (1) under abundance means that this species stands highest in number of individual birds seen, 227 in our study; at the other end of the scale of abundance (47) means that only 1 bird of this species was identified. With this explanation it will not be difficult to interpret the data:

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Name of Bird	Nests or Young	Abundance	Frequency	Habitat
Bluebird		(38)	.c.	cultivated areas
Robin, young		(17)	.a.	all habitats
Hermit thrush, 9 nests.....		(9)	.a.	all habitats
Olive-backed thrush, 1 nest.....		(41)	.r.	hardwoods
Wood thrush		(47)	.r.	bog
Wilson thrush		(46)	.r.	hardwoods
Blue-gray gnatcatcher		(46)	.r.	bog
Golden-crowned kinglet		(39)	.c.	bog
Chickadee, young		(21)	.c.	all habitats
Red-breasted nuthatch		(46)	.r.	bog
White-breasted nuthatch		(22)	.a.	bog and hardwoods
Brown creeper		(47)	.r.	hardwoods
Winter wren		(23)	.c.	hardwoods and bog
House wren, 1 nest.....		(30)	.c.	cultivated areas
Brown thrasher, 1 nest and young		(26)	.c.	hardwoods and aspens
Catbird		(42)	.c.	hardwoods and aspens
Redstart, 2 nests.....		(14)	.a.	hardwoods and aspens
Canadian warbler, nest ?.....		(43)	.r.	hardwoods and aspens
Maryland Yellow-throat, nest ?...		(32)	.c.	hardwoods and beach
Mourning warbler, nest ?.....		(46)	.r.	hardwoods and beach
Ovenbird, 1 nest.....		(11)	.c.	hardwoods and aspens
Pine warbler, nest ?.....		(34)	.c.	beach (pines)
Black-thr green warbler, young....		(29)	.c.	hardwoods and bog
Blackburnian warbler, 1 nest and y		(44)	.r.	hardwoods and bog
Black-throated blue warbler.....		(40)	.r.	hardwoods
Blackpoll warbler, young.....		(46)	.r.	hardwoods
Tennessee warbler		(46)	.r.	hardwoods
Chestnut-sided warbler, 3 nests....		(21)	.c.	hardwoods
Myrtle warbler		(46)	.r.	beach (pines)
Yellow warbler		(46)	.r.	cultivated areas
Nashville warbler		(46)	r.	hardwood
Black-and-white warbler, nest ?...		(34)	.c.	hardwood and bog
Blue-headed vireo		(45)	.r.	hardwoods
Yellow-throated vireo		(46)	.r.	hardwoods
Red-eyed vireo, 1 nest and young..		(5)	.a.	hwd, bog and aspens
Cedar Waxwing, 1 nest and young..		(1)	.a.	all habitats
Tree swallow, young.....		(28)	.c.	beach and open water
Barn swallow, young.....		(45)	.r.	cultivated area
Purple martin		(46)	.r.	cultivated area
Bank swallow		(44)	.r.	beach and open water
Cliff swallow, young.....		(32)	.c.	cultivated area
Scarlet tanager, 1 nest.....		(36)	.c.	hardwoods
Indigo bunting, 1 nest.....		(23)	.c.	hardwoods and aspens
Rose-breasted grosbeak		(44)	.r.	hardwoods
Towhee, 4 nests.....		(4)	.a.	all habitats
Goldfinch, nest ?.....		(7)	.a.	all habitats
Purple finch		(39)	.c.	beach
Junco, 1 nest.....		(15)	.a.	aspens
Song sparrow, 2 nests and young..		(2)	.a.	beach and hardwoods
Swamp sparrow		(46)	.r.	beach
Field sparrow		(47)	.r.	hardwoods
Chipping sparrow, 2 nests and young		(13)	.a.	hardwoods and aspens
White-throated sparrow, young....		(18)	.a.	hardwoods and bog
Lincoln's sparrow, young.....		(45)	.r.	hardwoods

Name of Bird	Nests or Young	Abundance	Frequency	Habitat
Savanna sparrow	(45)	.r.	.aspens	
Vesper sparrow, 4 nests and young. (8)	.a.	.aspens		
English sparrow, young.....	(20)	.c.	cultivated areas	
Bronzed grackle	(46)	.r.	beach	
Meadowlark	(38)	.r.	cultivated areas	
Red-winged blackbird, young.....	(42)	.c.	beach	
Cowbird, young	(24)	.c.	all habitats	
Bobolink, young	(43)	.r.	cultivated areas	
Crow, young	(3)	.a.	all habitats	
Blue jay	(26)	.c.	bog	
Prairie horned lark, young.....	(43)	.r.	cultivated areas	
Least flycatcher	(45)	.r.	hardwoods	
Acadian flycatcher	(46)	.r.	hardwoods	
Olive-sided flycatcher	(46)	.r.	hardwoods	
Wood pewee, 1 nest.....	(19)	.a.	hardwoods and aspens	
Phoebe, 2 nests.....	(43)	.c.	cultivated areas	
Crested flycatcher	(47)	.r.	hardwoods	
Kingbird, young	(15)	.a.	all habitats	
Hummingbird, 1 nest.....	(42)	.c.	all habitats	
Chimney swift	(26)	.a.	all habitats	
Nighthawk	(10)	.a.	all habitats	
Whippoorwill, 2 nests.....	(12)	.a.	aspens	
Northern flicker, 1 nest.....	(14)	.a.	all habitats	
Red-headed woodpecker, 1 nest & y (42)	.c.	hardwoods		
Yellow-bellied sapsucker, young....	(20)	.a.	hardwoods	
Downy woodpecker, young.....	(25)	.a.	all habitats	
Hairy woodpecker	(36)	.c.	hardwoods	
Belted kingfisher	(16)	.a.	beach	
Black-billed cuckoo	(44)	.r.	hardwoods	
Screech owl	(47)	.r.	hardwoods	
Barred owl	(46)	.r.	hardwoods	
Short-eared owl	(47)	.r.	hardwoods	
Osprey	(46)	.r.	beach and open water	
Marsh hawk	(42)	.c.	aspens	
Cooper's hawk	(46)	.r.	hardwoods	
Sharp-shinned hawk	(46)	.r.	hardwoods	
Broad-winged hawk	(47)	.r.	hardwoods	
Sparrow hawk	(45)	.r.	hardwoods and aspens	
Rose-breasted Grosbeak, young.....	(44)	.r.	bog	
Bald eagle	(43)	.r.	beach	
Mourning dove	(46)	.r.	beach and aspens	
Ruffed grouse, young.....	(20)	.a.	hardwoods and aspens	
Quail	(46)	.r.	cultivated areas	
Killdeer, young	(23)	.c.	beach	
Spotted sandpiper, 1 nest and y... (6)	.a.	beach		
Solitary sandpiper	(46)	.r.	beach	
Virginia rail, 1 nest.....	(46)	.r.	beach and swamp	
Great blue heron.....	(43)	.c.	beach	
Blue-winged teal	(46)	.r.	beach and open water	
Wood duck	(47)	.r.	beach and open water	
Red-breasted merganser, young....	(17)	.c.	beach and open water	
Bittern	(47)	.r.	beach and open water	
Buffle-head duck	(37)	.c.	beach and open water	

Name of Bird	Nests or Young	Abundance	Frequency	Habitat
Common tern		(46)	r..	beach and open water
Caspian tern		(33)	c..	beach and open water
Pied-billed grebe		(47)	r..	beach and open water
Loon, young		(28)	c..	beach and open water

Only such nests as were found actually occupied by the birds are recorded as "nests," the accompanying numeral indicating the number belonging to that particular species. The word "young" is used to indicate that young of the species were observed outside of the parental nest. "Nest?" is used to designate a probable nest, probability being based on seeing the parent bird with a larva in its beak, at the same time showing great concern over the approach of the writer.

12 of the species on the list show a decided preference for the society of man, for his houses, barns, cultivated lands and the like. With the 11 native birds this preference is doubtless acquired recently in a biological sense, the other, the English sparrow has doubtless had this preference for a long period of time even as biologists reckon it. They are the bluebird, house wren, yellow warbler, barn swallow, purple martin, cliff swallow, meadowlark, bobolink, prairie horned lark, phoebe, and quail; these all rank low in the scale of abundance, the house wren (30) being most abundant, the average for the 11 about 41.

The habitats most characteristic of the wilderness are the bog and the aspens, of our list 6 belong to the former and 5 to the latter; it will be noted that together they equal the number of native species showing a preference for human society. The vesper sparrow has an abundance of (8) and the whippoorwill (12), but the others rank much like the birds of the preceding paragraph.

35 species showed no decided preference of any kind, but were quite generally distributed thruout the territory. To this group belong the cedar waxwing (1), song sparrow (2), crow (3), and towhee (4). Of the chewink or towhee Barrows says: "It is far from common about Little Traverse in Emmett County."¹ It is only two miles to the Emmett-

¹ Michigan Bird Life, W. B. Barrows, 1912, page 526.

Cheyboygan county-line from the Station and only twenty to the Little Traverse Bay at Bay View.

Of the 25 listed as belonging to the "beach" or to "the beach and open water" only 14 will probably be called water birds. Of these the spotted sandpiper has an abundance of (6) and the red-breasted merganser (17), while the others rank rather low, from (28) to the lowest of all (47). Possibly Douglas Lake is too small to compete successfully with the larger lakes, Burt, Mullet, Huron and Michigan, none of which is more than 20 miles away, for the favor of the gulls and terns, and possessed of too little swamp to compete with Indian and Crooked Rivers for the favor of the coots and bitterns. Two trips were made to these rivers and on each of them large numbers of swamp birds were seen, but they are too far from the Station to be visited regularly; for this reason the records are unavailable for our purpose.

A HERMIT THRUSH STUDY.

BY CORDELIA J. STANWOOD.

A hill wooded with gray birches and evergreens slopes down to a peat bog. Just above the swale grows the painted trillium that carries at its snowy heart the symbol of the Trinity in royal purple. One morning as I plucked a handful of these dainty blooms, I flushed a brooding Hermit from her eggs. A small fir shaded the nest. The three green-blue eggs made a charming bit of color against the dull orange lining of pine needles.

Twelve days later I visited the nest again. The woods were now sweet with linnea and three fascinating little Thrushes, about seven days old, welcomed me with a wide expanse of golden throat. The young birds had beautiful, large eyes; the natal down was conspicuous at the close of the quill stage; and the tips of the olive and buffy feathers were just beginning to show beyond the quill casings.

I was anxious to try an experiment with tame Thrushes,